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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/235,875	01/22/1999	LARA MADISON	MBX020	2296

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EXAMINER	
KALLIS, RUSSELL	
ART UNIT	**PAPER NUMBER**
1638	

DATE MAILED: 07/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/235,875	MADISON ET AL.	
	Examiner	Art Unit	
	Russell Kallis	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,6,7,10 and 14-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6,7,10 and 14-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 June 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/12/2000*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Rejection of Claims 1, 6, 7, 10 and 14-21 under 35 U.S.C. 112, first paragraph, written description and enablement is withdrawn in view of Applicant's arguments.

Claims 1, 6-7, 10 and 14-21 are pending and examined.

Claim Objections

Claim 15 objected to because of the following informalities: It is unclear if the polymerase of Claim 15 is a new undefined polymerase or the polymerase of Claim 7. Amending the claim to recite that --the gene encoding the *phbC* polymerase is from a bacterium selected from the group-- would obviate this rejection. Moreover the recitation that the polymerase is from *R. eutropha, Klebsiella aerogenes,* or *P. putida* does not further limit Claim 7. Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claims 1, 6, 7, 10 and 14-21 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a NEW MATTER rejection. This rejection is maintained for the reasons of record set forth in the Official action mailed 5/05/2004 and 10/21/2004. Applicant's arguments filed 8/05/2004 and 4/25/2005 have been fully considered but they are not persuasive.

The added claimed material which is not supported by the original disclosure is as follows: Newly amended Claim 1 recites "a phbC polymerase gene that encodes an enzyme that polymerizes 3-hydroxybutyryl CoA and 3-hydroxyhexanoyl-CoA". There is no support in the specification for a *phbC* polymerase gene encoding an enzyme that polymerizes hydroxybutyryl CoA and 3-hydroxyhexanoyl-CoA. The specification supports PHB polymerases from *Z. ramigera* that have a strict specificity for 3-hydroxy butyryl CoA and a PHB polymerase from *R. eutropha* that is highly specific for the 3-hydroxybutyryl CoA monomer and has shown a 7.5% activity towards 3-hydroxyvaleryl CoA. There is only speculation that the *phbC* gene from *N. salmonicolor* encodes a PHB polymerase that might have a wider substrate range than the other PHB biosynthetic enzymes on page 12 lines 1-6. Applicant is invited to point to the page and line number in the specification where support can be found. Absent of such support, Applicant is required to cancel the new matter in the reply to this Office Action.

Applicant asserts that support for a *phbC* polymerase gene that encodes an enzyme that polymerizes 3-hydroxybutyryl-CoA and 3-hydroxyhexanoyl-CoA is found on page 21, lines 11-15; or in Examples 2, 3 and 5 (response page 9 lines 7-21).

Applicant's assertion that page 21, lines 11-15 support "a *phbC* polymerase gene that encodes an enzyme that polymerizes 3-hydroxybutyryl-CoA and 3-hydroxyhexanoyl-CoA" is incorrect because the PHA polymerase referred to in line 11 is not encoded by a *phbC* polymerase gene but rather a *phaC* gene.

Applicant's assertion that Example 3 supports "a *phbC* polymerase gene that encodes an enzyme that polymerizes 3-hydroxybutyryl-CoA and 3-hydroxyhexanoyl-CoA" is incorrect as well because Example 3 does not recite or suggest that there is a

phbC polymerase gene that encodes an enzyme that polymerizes 3-hydroxybutyryl-CoA and 3-hydroxyhexanoyl-CoA. Example 3 merely lists *phbC* as one of several genes encoding enzymes required for the synthesis of 3-hydroxyhexanoate.

Applicant amended Example 2 of the specification in the amendment filed 20 January 2005 and Example 5 of the specification in the amendment filed 5 August 2004 to recite that the gene from *A. caviae* taught by Fukui and Doi is a *phaC* gene encoding a PHA synthase in response to the Examiner's objection that applicant had mistakenly referred to the gene taught by Fukui and Doi as a PHB polymerase i.e. a *phbC* gene.

Applicant asserts that Figure 9 shows a recombinant pathway for the synthesis of PHBH in *E. coli* using a PHA polymerase gene *phaC* from *P. putida* showing that the polymerase acts on 3-hydroxyhexanoyl-CoA and that this is support for "a *phbC* polymerase gene that encodes an enzyme that polymerizes 3-hydroxybutyryl-CoA and 3-hydroxyhexanoyl-CoA" (response page 10 lines 2-5). Clearly this is incorrect because a *phaC* gene is not a *phbC* gene.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7, 10, 15, 18, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Timm A. *et al.* Applied and Environmental Microbiology, November 1990, Vol. 56, No. 11, p. 3360-3367 in light of Hoffman N. *et al.* FEMS Microbiology Letters, 2000, p. 253-259.

Claims are drawn to a method for the biological production of polyhydroxyalkanoate containing 3-hydroxyhexanoate, comprising providing genetically engineered bacteria expressing a *phbA* thiolase gene, a *phbB* reductase gene, and a *phbC* polymerase gene encoding an enzyme that polymerizes 3-hydroxybutyryl CoA and 3-hydroxyhexanoyl CoA; wherein the bacteria further comprises a gene encoding a β-hydroxyacyl-ACP-coenzyme A transferase, or the polymerase is selected from a bacterium selected from the group consisting of *R. eutropha, Klebsiella aerogenes,* and *P. putida*; or the bacteria further expresses one or more fatty acid biosynthethic enzymes. Since Claim 15 recites an *R. eutropha* (*Alcaligenes eutrophus*) and further comprises from Claim 7, Claim 7 is included in the rejection.

Timm teaches *Pseudomonas aeruginosa* transformed with the *PHB* synthetic genes comprising a thiolase gene (*phbA*), a reductase gene (*phbB*), and a polymerase gene (*phbC*) from *A. eutrophus (now called R. eutropha)*, that produced a polymer that consisted 37.5 mol% 3-hydroxybutyrate, 2.1 mol% 3-hydroxyhexanoate, 57.7 mol% 3-hydroxyoctanoate, and 2.7 mol% 3-hydroxydodecanoate (see page 3362, column 2 results section 1st and 2nd paragraphs); and wherein *Pseudomonas aeruginosa* inherently comprises a native *phaG* gene i.e. a gene encoding a β-hydroxyacyl-ACP-coenzyme A transferase also known as a ACP-CoA acyltransacylase (see title and abstract of Hoffmann) and express one or more fatty acid biosynthetic enzymes; and thus the reference teaches all the limitations of Claims 1, 7, 10, 15, 18, 19 and 20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Timm A. *et al.* Applied and Environmental Microbiology, November 1990, Vol. 56, No. 11, p. 3360-3367 in view of Macharenas *et al.* U.S. Patent 5,470,727 issued 28 November 1995.

The claims are broadly drawn to a method for the biological production of polyhydroxyalkanoate containing 3-hydroxyhexanoate in genetically engineered bacteria expressing a *phbA* thiolase gene, a *phbB* reductase gene, and a *phbC* polymerase gene.

Timm teaches a method of making polyhydroxyalkanoate having a polyhydroxybutyrate-co-polyhydroxyhexanoate polymer comprising providing a *Pseudomonas aeruginosa* transformed with the *PHB* synthetic genes comprising a thiolase gene (*phbA*), a reductase gene (*phbB*), and a polymerase gene (*phbC*) from *A. eutrophus (now called R. eutropha)*, that produced a polymer that consisted 37.5 mol% 3-hydroxybutyrate, 2.1 mol% 3-hydroxyhexanoate, 57.7 mol% 3-hydroxyoctanoate, and 2.7 mol% 3-hydroxydodecanoate (see page 3362, column 2 results section 1st and 2nd paragraphs) wherein substrate and conditions for growth are determinative of product polymer composition (see abstract lines 1-4; page 3360 column 1 and page 3366, 1st paragraph of discussion) and wherein expression of one or more fatty acid biosynthetic enzymes in *Pseudomonas aeruginosa* is inherent to the microorganism.

Timm does not teach a method of making polyhydroxyalkanoate wherein the *phbC* gene is incorporated into the bacterial chromosome.

Mascarenhas teaches that chromosomal integration of genes encoding heterologous peptides would be advantageous as an alternative means for expression of foreign proteins in bacterial host cells because plasmids or multi copy vectors are unstable and require some means of selection such as antibiotics in order to maintain their expression (see column 1, lines 10-32) and a method of chromosomal integration of a foreign gene (see Example in columns 7 and 8; and Claim 1).

It would have been obvious to modify the invention of Timm to substitute a expression of a foreign gene on a plasmid for expression of the foreign gene from the bacterial chromosome as taught by Mascarenhas. One of ordinary skill in the art would have been motivated by the teachings of Mascarenhas that chromosomal integration of foreign genes into the chromosome would allow for stable expression of a foreign protein, and that one of ordinary skill in the art would have been motivated by the success of Timm in producing polyhydroxybutyrate-co-polyhydroxyhexanoate when grown under conditions that facilitate the production of polyhydroxybutyrate-co-polyhydroxyhexanoate in *Pseudomonas aeruginosa* transformed with the *PHB* synthetic genes comprising a thiolase gene (*phbA*), a reductase gene (*phbB*), and a polymerase gene (*phbC*) from *A. eutrophus (*now called *R. eutropha)*, and the success of Mascarenhas in stably expressing chromosomally integrated foreign genes and would have a reasonable expectation of success given the success of Timm and Mascarenhas.

Claims 1, 7 and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Timm A. *et al.* Applied and Environmental Microbiology, November 1990, Vol. 56, No. 11, p. 3360-3367 in view of Schubert P. *et al.*, J. of Bacteriology 1988; Vol. 170, No. 12, p. 5837-5847 and in further view of Boynton Z. *et al.* J. of Bacteriology June 1996, Vol. 178, No. 11, p. 3015-3024.

The claims are broadly drawn to a method for the biological production of polyhydroxyalkanoate containing 3-hydroxyhexanoate in genetically engineered bacteria expressing a *phbA* thiolase gene, a *phbB* reductase gene, and a *phbC* polymerase gene.

Timm teaches a method of making polyhydroxyalkanoate having a polyhydroxybutyrate-co-polyhydroxyhexanoate polymer comprising providing a *Pseudomonas aeruginosa* transformed with the *PHB* synthetic genes comprising a thiolase gene (*phbA*), a reductase gene (*phbB*), and a polymerase gene (*phbC*) from *A. eutrophus (now called R. eutropha)*, that produced a polymer that consisted 37.5 mol% 3-hydroxybutyrate, 2.1 mol% 3-hydroxyhexanoate, 57.7 mol% 3-hydroxyoctanoate, and 2.7 mol% 3-hydroxydodecanoate (see page 3362, column 2 results section 1st and 2nd paragraphs) wherein substrate and conditions for growth are determinative of product polymer composition (see abstract lines 1-4; page 3360 column 1 and page 3366, 1st paragraph of discussion) and wherein expression of one or more fatty acid biosynthetic enzymes in *Pseudomonas aeruginosa* is inherent to the microorganism.

Timm does not teach a method of making polyhydroxyalkanoate having a polyhydroxybutyrate-co-polyhydroxyhexanoate polymer in an *E. coli* bacterium (claim 14) wherein the *phbC* gene is incorporated into the bacterial chromosome (claim 6); or

further comprises a D-specific enoyl-CoA hydratase (claim 16), or three enzymes from *C. acetobutylicum* that form butyryl CoA (claim 17).

Schubert teaches the production of PHB (polyhydroxybutyrate) in *E. coli* transformed with a thiolase gene (*phbA*), a reductase gene (*phbB*), and a polymerase gene (*phbC*) and the pathways and related biochemical steps required for PHB synthesis in *A. eutrophus* (also known as *R. eutropha*, in Figure 2 on page 5845); that a *phbC* gene was available from *Rhodospirilum rubrum* and an acyl CoA synthase (page 5837 column 2 lines 23); that *A. eutrophus* comprises a D-specific enoyl-CoA hydratase (page 5844 column 2 line 36 to page 5845 column 1 line 5 and enzyme number 6 in figure 2; see enzyme number 1 in figure 2).

Boynton teaches three enzymes from *C. acetobutylicum* that form butyryl CoA (see abstract).

It would have been obvious to modify the invention of Timm to substitute a transformed *E. coli* comprising a thiolase gene (*phbA*), a reductase gene (*phbB*), and a polymerase gene (*phbC*) as taught by Schubert to produce polyhydroxybutyrate-co-polyhydroxyhexanoate when grown under conditions that facilitate the production of polyhydroxybutyrate-co-polyhydroxyhexanoate as taught by Timm; and to modify the invention of Timm to inlcude the acyl CoA synthase taught by Schubert (enzyme 1 of Figure 2 in Schubert); or to also modify the invention of Timm to include the genes of the three enzymes from *C. acetobutylicum* that form butyryl CoA as taught by Boynton (abstract of Boynton); or to further include the D-specific enoyl-CoA hydratase taught by Schubert (page 5844 column 2 line 36 to page 5845 column 1 line 5 and enzyme number 6 in figure 2); one of ordinary skill in the art would have been motivated by the success

of Timm in producing polyhydroxybutyrate-co-polyhydroxyhexanoate when grown under conditions that facilitate the production of polyhydroxybutyrate-co-polyhydroxyhexanoate in *Pseudomonas aeruginosa* transformed with the *PHB* synthetic genes comprising a thiolase gene (*phbA*), a reductase gene (*phbB*), and a polymerase gene (*phbC*) from *A. eutrophus (*now called *R. eutropha)*, and the success of Schubert of producing PHB in *E. coli* transformed with the PHB biosynthetic genes from *A. eutrophus* comprising a thiolase gene (*phbA*), a reductase gene (*phbB*), and a polymerase gene (*phbC*); and the success of Boynton in expressing three enzymes from *C. acetobutylicum* that form butyryl CoA, a necessary substrate for PHA, in transformed *E. coli* and that one of skill would have a reasonable expectation of success in producing polyhydroxybutyrate-co-polyhydroxyhexanoate in bacteria, including *E. coli*, transformed with a thiolase gene (*phbA*), a reductase gene (*phbB*), and a polymerase gene (*phbC*); and that including other PHA biosynthetic genes would only further enhance the expectation of success in producing polyhydroxybutyrate-co-polyhydroxyhexanoate in genetically engineered bacteria.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 6, 10 and 16 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claim 17 of U.S. Patent No. 6,593,116 and Claim 18 of U.S. Patent 6,913,911. Although the conflicting claims are not identical, they are not patentably distinct from each other because Claims 1, 6, 10 and 16 of the instant application drawn to a method of producing polyhydroxyalkanoate containing 3-hydroxyhexanoate in genetically engineered bacteria expressing a *phbA* thiolase, a *phbB* reductase and a *phbC* polymerase integrated into the chromosome, further comprising a β-hydroxy-ACP-coenzyme A transferase or a D-specific enoyl-CoA hydratase are obvious over Claim 17 of U.S. Patent No. 6,593,116 and Claim 18 of U.S. Patent 6,913,911 drawn to a method of producing polyhydroxyalkanoate in a genetically engineered bacterium and a genetically engineered microorganism respectively, in both cases comprising at least one gene encoding an enzyme selected from the group consisting of a thiolase, a reductase, a PHB synthase (i.e. a *phbC* polymerase), a PHA synthase (i.e. a *phaC* polymerase), an acyl-CoA transferase and an enoyl-CoA hydratase, integrated into the chromosome, to produce polyhydroxyalkanoate and because the genes of the instant claims required to practice the method as well as the desirability of producing a polyhydroxyalkanoate that contains 3-hydroxyhexanoate are known in the art.

Claims 1, 6, 10 and 16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-2 and 5-10-23 of copending Application No. 10/703,906. Although the conflicting claims are

not identical, they are not patentably distinct from each other because Claims 1, 6, 10 and 16 of the instant application drawn to a method of producing polyhydroxyalkanoate containing 3-hydroxyhexanoate in genetically engineered bacteria expressing a *phbA* thiolase, a *phbB* reductase and a *phbC* polymerase integrated into the chromosome, further comprising a β-hydroxy-ACP-coenzyme A transferase or a D-specific enoyl-CoA hydratase are obvious over Claims 1-2 and 5-23 of copending Application No. 10/703,906 drawn to a method of biological production of polyhydroxyalkonoates containing 3-hydroxyhexanoate in a genetically engineered organism having at least one gene selected from the group consisting of PHB polymerase, PHA polymerase, β-ketothiolase, β-ketoacyl-CoA reductase, D-specific enoyl-CoA hydratase, crotonase, butyryl-coA dehydrogenase, and 3-hydroxybutyryl-CoA dehydrogenase integrated into the chromosome, and because the genes of the instant claims required to practice the method as well as the desirability of producing a polyhydroxyalkanoate that contains 3-hydroxyhexanoate are known in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1, 6, 10 and 16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 18 of copending Application No. 11/053,551. Although the conflicting claims are not identical, they are not patentably distinct from each other because Claims 1, 6, 10 and 16 of the instant application drawn to a method of producing polyhydroxyalkanoate containing 3-hydroxyhexanoate in genetically engineered bacteria expressing a *phbA* thiolase, a *phbB* reductase and a *phbC* polymerase integrated into the chromosome,

further comprising a β-hydroxy-ACP-coenzyme A transferase or a D-specific enoyl-CoA hydratase are obvious over Claim 18 of copending Application No. 11/053,551 drawn to a method for producing polyhydroxyalkanoates in a genetically engineered microorganism comprising at least one gene encoding an enzyme selected from the group consisting of a thiolase, a reductase, a PHB synthase (i.e. a *phbC* polymerase), a PHA synthase (i.e. a *phaC* polymerase), an acyl-CoA transferase and an enoyl-CoA hydratase, integrated into the chromosome, to produce polyhydroxyalkanoate, and because the genes of the instant claims required to practice the method as well as the desirability of producing a polyhydroxyalkanoate that contains 3-hydroxyhexanoate are known in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

All claims are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Kallis whose telephone number is (571) 272-0798. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (571) 272-0745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Russell Kallis Ph.D.
July 1, 2005

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PATENT EXAMINER

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